# STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING A	)	Proposed Decision
NEW CONTAMINANT SOURCE FOR	)	ORDER No. 04AQ-C010
NORTHWEST PIPELINE CORPORATIONGP	)	First Revision

To: Northwest Pipeline Corporation PP PO Box 58900
Salt Lake City, Utah 84158-0900

### 1.0 PROJECT SUMMARY

On June 26, 1992, Ecology approved Notice of Construction (NOC) Order No. DE 92AQ-C328, authorizing installation and operation of a 6,500-horsepower natural gas compressor station. On October 14, 1993, Ecology issued Order No. DE 92AQ-C328 First Revision, deleting the requirement to install a Continuous Emission Monitoring System (CEMS) for  $NO_X$  and performance testing requirements for  $SO_2$ ,  $PM_{10}$ , and VOC. The second revision occurred on July 13, 1995, and allowed an increase in the emission limits for  $SO_2$ ,  $PM_{10}$ , and VOC. Finally, on January 21, 2002, a third revision approved modifications to the source testing requirements for  $NO_X$ , CO, and  $SO_2$ , and deleted some obsolete conditions.

On May 13, 1999, Ecology approved NOC Order No. 99AQ-C381, authorizing installation and operation of a new Solar Centaur T-5800S SoLoNOx natural gas turbine.

On July 26, 2002, Ecology issued Order No. 02AQCR-4552, approving the addition of one new Solar Taurus 60 T7800S natural gas turbine, one 325 horsepower (hp) (210 kW) Caterpillar emergency generator, and one 3.854 million British thermal unit per hour (MMBtu/hr) Sellers boiler to the existing Roosevelt Compressor Station.

On January 21, 2003, Northwest Pipeline Corporation requested that it be allowed to install a 2.512 MMBtu/hr Sellers boiler instead of the 3.854 MMBtu/hr Sellers boiler. On January 29, 2003, Northwest Pipeline Corporation requested that it be allowed to install a Solar Taurus 60 T7300S natural gas turbine instead of the new Solar Taurus 60 T-7800S natural gas turbine. These requests were approved on February 28, 2003, when Ecology issued Order No. 02AQCR-4552 First Revision.

NOC Orders Nos. DE 92AQ-C328 Third Revision, DE 99AQ-C381, and 02AQCR-4552 First Revision, each required source testing for  $PM_{10}$ , at least once every five years. Each of the three turbines, authorized by these Orders, were  $PM_{10}$  source tested upon initial installation. Source test results showed  $PM_{10}$  emissions are approximately two-thirds of the emissions allowed by the included emissions limits. Upon consideration of the high cost associated with  $PM_{10}$  testing, of these emissions units, and the combined potential  $PM_{10}$  emissions of 8.3 tons per year, Ecology

removed the PM<sub>10</sub> source testing requirement. Additionally, this Order consolidates NOC Orders Nos. DE 92AQ-C328 Third Revision, DE 99AQ-C381, and 02AQCR-4552 First Revision.

This Order considers installation and operation of 1 - Solar Taurus T-6500S, 1 - Solar Centaur T-5800S turbine, 1 - Solar Taurus T-7300S turbine, 1 - 250,000 Btu/hr line heater, 2 - 2.51 million Btu/hr Sellers boilers, 1 - 310 horsepower Cummins GTA855A emergency generator, and 1 - 325 horsepower Caterpillar 3406 emergency generator. Emission estimates in 2.2 include emissions from all seven emission units and quantify sulfur dioxide emissions based upon the pipeline tariff of 5 grains sulfur / 100 standard cubic feet of natural gas.

The source is located at the Roosevelt Compressor Station, near Roosevelt, Washington within Section 8, Township 4 North, Range 22 East, Willamette Meridian, Klickitat County.

In relation to the above, the Washington State Department of Ecology (Ecology), pursuant to Revised Code of Washington (RCW) 70.94.152, made the following determinations:

- 1.1 The proposed project, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in chapter 173-400 Washington Administrative Code (WAC) and chapter 173-460 WAC, and the operation thereof, at the location proposed, will not result in ambient air quality standards being exceeded.
- 1.2 The proposed project, if constructed and operated as herein required, will provide all known, available and reasonable methods of emission control.

THEREFORE, IT IS ORDERED that the project as described in said Notice of Construction and more specifically detailed in plans, specifications and other information submitted to Ecology in reference thereto, is approved for construction, installation and operation, provided the following conditions are met:

# 2.0 DESCRIPTION

### 2.1 LAWS AND REGULATIONS

This facility qualifies as a new source of air contaminants under WAC 173-400-110, October 23, 1998, August 15, 2001, and WAC 173-460-040, February 2, 1998, July 21, 1998.

The proposed project shall comply with all current state laws and regulations, including chapter 70.94 RCW, Washington Clean Air Act; chapter 173-400 WAC, General Regulations for Air Pollution Sources; and chapter 173-460 WAC, Controls for New Sources of Toxic Air Pollutants.

The proposed project shall also comply with Title 40 Code of Federal Regulations (CFR)

60, Subpart GG, Standards of Performance for Stationary Gas Turbines.

This Order supercedes NOC Orders Nos. DE 92AQ-C328 Third Revision, DE 99AQ-C381, and 02AQCR-4552 First Revision.

### 2.2 ESTIMATED EMISSIONS

This facility will may produce up to the following controlled annual emissions:

Pollutant	Emissions	
Nitrogen Oxides (NO <sub>X</sub> )	<del>88.9</del> <u>88.0</u>	tons per year
Carbon Monoxide (CO)	<del>70.6</del> 91.9	tons per year
Sulfur Dioxide (SO <sub>2</sub> )	<del>2.4</del> <u>11.3</u>	tons per year
Volatile Organic Compounds (VOC)	<del>18.4</del> <u>2.66</u>	tons per year
Total Suspended Particulate (TSP), PM <sub>10</sub> ,PM <sub>2.5</sub> PM <sub>10</sub>	<del>8.3</del> <u>5.34</u>	tons per year
Total Suspended Particulate (TSP)	8.3	tons per year

#### 2.3 AMBIENT ANALYSIS

The site of this proposal is within an area which is in attainment or unclassified for all pollutants regulated by the ambient air quality standards.

Modeling, for the Facility, has shown compliance with Criteria pollutant and toxic air pollutant emissions, using EPA approved models.

### 3.0 APPROVAL CONDITIONS

#### 3.1 BACT

As required by WAC 173-400-113(2)(b), October 23, 1998, and August 15, 2001, this project shall use Best Available Control Technology (BACT) to control emissions of criteria pollutants. The following is considered BACT:

- 3.1.1 Nitrogen Oxides  $(NO_X)$  Use of dry low  $NO_X$  combustion control.  $NO_X$  emissions shall not exceed emission limits specified in 3.4.
- 3.1.2 Carbon Monoxide (CO) Good combustion control. T-6500 supplemented by catalytic oxidation as needed. Employ 3-way NSCR on the emergency generator. CO emissions shall not exceed emission limits specified in 3.4.
- 3.1.3 Volatile Organic Compounds (VOC) Good combustion control. VOC emissions shall not exceed emission limits specified in 3.4.
- 3.1.4 Sulfur Dioxide (SO<sub>2</sub>) Good combustion control, use of a clean burning fuel (i.e., natural gas), and limitations on sulfur content of the fuel contained in 40 CFR 60 Subpart GG. SO<sub>2</sub> emissions shall not exceed emission limits specified in 3.4.
- 3.1.5 Particulate Matter (TSP & PM<sub>10</sub>) Good combustion control and use of a clean

burning fuel (i.e., natural gas).  $PM_{10}$  and TSP emissions shall not exceed emission limits specified in 3.4.

## 3.2 T-BACT

As required by WAC 173-460-040(4)(b), February 2, 1998, and July 21, 1998, this project shall use Best Available Control Technology for Toxics (T-BACT). The following is considered T-BACT:

3.2.1 Toxic Air Pollutants (TAP) - Use of a clean-burning fuel (i.e., natural gas) and use of good combustion practices. TAP emissions shall not exceed emission limits specified in 3.4.

### 3.3 PRODUCTION

3.3.1 No fuel other than natural gas shall be combusted. Consumption of natural gas shall be limited as specified below:

Turbine	Consumption (MMBtu/hr)
Solar Taurus T 6500	4 <del>7.62</del>
Solar Centaur T 5800S	<del>49.7</del>
Solar Taurus T-7300S	$57.98 \pm 20\%$

<sup>\*</sup> MMBtu/hr = million British thermal units per hour

3.3.23.3.1 Each turbine shall operate only in SoLoNOx mode, except during periods of start-up and shut-down or when source tests are being conducted on the unit. The SoLoNOx modes determined during the initial setup and testing of each turbine, are specified below:

Turbine	SoLoNOx mode (NGP)
Solar Taurus T-6500	90%
Solar Centaur T-5800S	<del>92</del> 91%
Solar Taurus T-7300S	90%

<sup>\*</sup> NGP = Gas Producer Speed

Alternate SoLoNOx modes may be proposed in writing to Ecology and may be used if approved by Ecology in writing.

3.3.33.3.2 The Each emergency generator shall not exceed 200 hours of operation in any 12 month period.

#### 3.4 EMISSION LIMITS

3.4.1 The following emission rates shall not be exceeded at the Solar Taurus T-6500 stack:

Pollutant	Emission 1	Limits
Nitrogen Oxides (NO <sub>X</sub> )	<del>40</del> <u>36.3</u>	tons per year

Pollutant	Emission Limits	
	42	ppmdv at 15 % O <sub>2</sub> ,
		24-hr ave.
Carbon Monoxide (CO)	<del>11.6</del> 29.2	tons per year
Sulfur Dioxide (SO <sub>2</sub> )	<del>1.4</del> 3.6	tons per year
	0.8	% total sulfur fuel
		content
Volatile Organic Compounds (VOC)	<del>7.9</del> 0.84	tons per year
$PM_{10}$	<del>3.4</del> 1.71	tons per year

3.4.2 The following emission rates shall not be exceeded at the Solar Centaur T-5800S stack:

Pollutant	Emission I	Limits
Nitrogen Oxides (NO <sub>X</sub> )	4.98 <u>5.11</u>	pounds per hour
	25	ppmdv at 15 % O <sub>2</sub>
Carbon Monoxide (CO)	6. <del>07</del> <u>24</u>	pounds per hour
Sulfur Dioxide (SO <sub>2</sub> )	0. <del>011</del> <u>78</u>	pounds per hour
Volatile Organic Compounds (VOC)	0. <del>321</del> <u>18</u>	pounds per hour
$PM_{10}$	0. <del>673</del> <u>37</u>	pounds per hour
Total Suspended Particulate (TSP)	0. <del>673</del> <u>37</u>	pounds per hour
Toxic Air Pollutants	0.321	
Formaldehyde*	0. <del>0186</del> <u>16</u>	pounds per hour

<sup>\*</sup> Toxic air pollutant with estimated emissions greater than the Small Quantity Emission Rate listed in WAC 173-460-080(2)(e).

3.4.3 The following emission rates shall not be exceeded at the Solar Taurus T-7300S stack:

Pollutant	Emission Li	imits
Nitrogen Oxides (NO <sub>X</sub> )	5. <del>83</del> 90	pounds per hour
	25.00	ppmdv at 15 % O <sub>2</sub>
Carbon Monoxide (CO)	<del>7.25</del> <u>7.20</u>	pounds per hour
	50.00	ppmdv at 15 % O <sub>2</sub>
Sulfur Dioxide (SO <sub>2</sub> )	<del>0.20</del> <u>0.90</u>	pounds per hour
Volatile Organic Compounds (VOC)	<del>2.05</del> <u>0.21</u>	pounds per hour
	25.00	ppmdv at 15 % O <sub>2</sub>
$PM_{10}$	0. <del>38</del> <u>42</u>	pounds per hour
Total Suspended Particulate (TSP)	0. <del>38</del> <u>42</u>	pounds per hour
Toxic Air Pollutants		
1,3-Butadiene*	0.0000250	pounds per hour
Formaldehyde*	0. <del>0413</del> <u>18</u>	pounds per hour
Nitric oxide*	3.42	pounds per hour

Pollutant	Emission Limits	
PAH*	0.000128 pounds per hour	

<sup>\*</sup> Toxic air pollutant with estimated emissions greater than the Small Quantity Emission Rate listed in WAC 173-460-080(2)(e).

- 3.4.4 Visible emissions from the turbine exhaust stack shall not exceed five (5) percent opacity.
- 3.4.5 No visible emissions from the emission unit shall be detectable offsite.
- 3.4.6 The backup generator shall be operated within the Tier 1 engine emission standards of 40 CFR Parts 89.112-96 and 89.113-96.

#### 3.5 TESTING

- 3.5.1 Source testing for NO<sub>X</sub> shall be conducted at least once per calendar year.
- 3.5.2 Source testing for CO shall be conducted at least once per calendar year for the T-5800S and T-7300S. Source testing for CO shall be conducted at least once every five calendar years for the T-6500.
- 3.5.3 Source testing for SO<sub>2</sub> and VOC shall be conducted at least once every five calendar years for the T-5800S and T-7300S. Source testing for SO<sub>2</sub> and VOC, for the T-6500, shall be conducted at least once every five calendar years, except if the most recent test demonstrates emissions levels below those specified in Condition 3.4.1, source testing for that pollutant is not required.
- 3.5.4 Source testing for all required pollutants shall be performed at the same time.
- 3.5.5 Source testing shall be performed by an independent testing firm.
- 3.5.6 Testing shall consist of at least three separate runs across the SoLoNOx mode. A run shall be conducted at each of the high, midpoint, and low, range of Gas Producer Speeds which comprise the SoLoNOx mode.
- 3.5.7 Ecology shall be notified, and a test plan shall be submitted for approval by Ecology, at least 30 days prior to any source testing.
- 3.5.8 Written results of all source testing shall be submitted to Ecology within 60 days of occurrence.
- 3.5.9 Adequate sampling ports, safe sampling platforms and access to platforms, and utilities for sampling and testing shall be provided by the permittee according to 40 CFR 60.8.

3.5.10 Source testing shall be conducted according to the following specified methods:

Pollutant	Test Method
Oxides of nitrogen (NO <sub>X</sub> )	40 CFR 60, Appendix A, Method 20, July
	1, 2001
Carbon monoxide (CO)	40 CFR 60, Appendix A, Method 10, July
	1, 2001
Sulfur dioxide (SO <sub>2</sub> )	40 CFR 60, Appendix A, Method 20, July
	<del>1, 2001</del>
Volatile organic compounds (VOC)	40 CFR 60, Appendix A, Method 25A,
	July 1, 2001
Particulate Matter (PM <sub>10</sub> )	40, CFR, Part 60, Appendix A, Method 5,
(All particulate matter shall be	July 1, 2001
considered PM <sub>10</sub> .)	
Opacity	40 CFR 60, Appendix A, Method 9, July
	1, 2001

- 3.5.11 Testing for the nitrogen content of the fuel supply to the compressor to meet the requirement of 40 CFR 60.334 has been waived as authorized by the Environmental Protection Agency, Region 10, January 11, 1993. The custom monitoring schedule is allowed according to 40 CFR 60.334 and may be changed.
- 3.5.12 Fuel supply sulfur content shall be monitored by holding a tariff for the gaseous fuel of 5.0 grains/100 scf or less. Testing for the sulfur content of the fuel supply to the compressor to meet the requirement of less than or equal to 0.8 percent by weight, according to 40 CFR 60.333, the monitoring, according to 40 CFR 60.334 and the test methods and procedures, according to 40 CFR 60.335 shall follow the custom fuel monitoring schedule established for the thirteen compressor stations located in Washington, Idaho, and Oregon. This custom fuel gas monitoring has been authorized by the Environmental Protection Agency, Region 10, on January 11, 1993, and August 10, 1993. The custom monitoring schedule is contingent upon the use of pipeline quality natural gas, a record of constant supplier or source, no change in fuel quality, and source test results for each turbine. The custom monitoring schedule is allowed according to 40 CFR 60.334 and may be changed.
- 3.5.133.5.12 Alternate methods of testing and alternate testing requirements may be proposed in writing to Ecology and may be used if approved by Ecology in writing.
- 3.5.143.5.13 An alternate custom fuel gas monitoring schedule may be used, to comply with Conditions 3.5.11-10 and 3.5.1211, above, if approved, in writing, by EPA Region 10 and Ecology.

### 3.6 INTERLOCKS

The permittee shall install a continuous mode monitor with an alarm programmed to sound when the emission unit operates outside of the SoLoNOx mode. If the alarm is activated, the gas control operator will either speed up or shut down the unit.

#### 3.7 MONITORING

- 3.7.1 On line monitors shall be referenced in the Operations and Maintenance Manual.
- 3.7.2 Measurement of NO<sub>X</sub> from the turbine using a Continuous Emissions Monitoring System (CEMS), or an approved alternative emissions methodology, may be required if the annual stack test does not demonstrate compliance with the above emission limit for NO<sub>X</sub>. If a CEMS or equivalent system is required, it shall meet the requirements of 40 CFR 60, Appendix B, Performance Specifications, and 40 CFR 60, Appendix F, Quality Assurance Procedures. CEMS (or approved alternative emissions monitoring methodology) reports shall be submitted at least monthly for NO<sub>X</sub> (unless a different testing and reporting schedule has been approved by the department) within 30 days of the end of each calendar month and in a format approved by the department which shall include but not be limited to the following:
  - 3.7.2.1 Process or control equipment operating parameters.
  - 3.7.2.2 The daily maximum and average concentration, in the units of the standard, for each pollutant monitored.
  - 3.7.2.3 The duration and nature of any monitor down-time.
  - 3.7.2.4 Results of any monitor audits or accuracy checks.
  - 3.7.2.5 Results of any stack tests.

For each occurrence of monitored (by CEMS or approved alternative methodology) emissions in excess of the standard the report shall include the following:

- 3.7.2.6 The time of the occurrence.
- 3.7.2.7 Magnitude of the emission or process parameters excess.
- 3.7.2.8 The duration of the excess.
- 3.7.2.9 The probable cause.
- 3.7.2.10 Any corrective actions taken or planned.
- 3.7.2.11 Any other agency contacted.

Any proposed alternative NO<sub>X</sub> reporting shall be at a minimum equivalent to a CEMS which meets, or is equivalent in scope and effect, to 40 CFR Part 60 Appendix B, Performance Specifications, and Appendix F, Quality Assurance Procedures.

## 3.8 RECORD KEEPING AND REPORTING

3.8.1 Records shall be kept of the quantity of fuel used, limited by Condition 3.3.1, and

all periods of operation outside of the SoLoNOx mode not allowed for by Condition 3.3.21.

- 3.8.2 Records shall be kept of all periods of downtime of the monitors of Conditions 3.6 and 3.7.1.
- 3.8.3 The records required by Conditions 3.8.1 and 3.8.2 shall be submitted to Ecology semiannually.
- 3.8.4 Notification and record keeping required by Title 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, including notification and record keeping for construction, startup, physical or operational changes, malfunction, excess emission, or any other reportable item, shall be submitted according to 40 CFR 60.7.
- 3.8.5 Source test plans and results shall be submitted to Ecology according to Conditions 3.5.6 and 3.5.7.
- 3.8.6 If a NO<sub>X</sub> CEMS, or an approved alternative emissions methodology is installed. Record keeping and reporting shall be conducted according to Condition 3.7.2.

#### 3.9 OPERATIONS AND MAINTENANCE

The emission unit shall be properly operated and maintained. An emission unit specific operating and maintenance (O&M) manual shall be developed and followed by the permittee. Manufacturer's instructions may be referenced. O&M manual development shall be completed within 30 days of installation of the emission unit. The O&M manual shall be updated to reflect any modifications to the emission units or operating procedures. The emission unit shall be operated and maintained in accordance with the O&M manual. Failure to follow the O&M manual and the adequacy of the O&M manual will be two of the factors considered by Ecology in determining whether the emission units are properly operated and maintained. Regular maintenance records shall be kept at the source. These O&M records shall be available for inspection by Ecology, organized in a readily accessible manner, and retained for at least five (5) years. The O&M manual shall at a minimum include:

- 3.9.1 Normal operating parameters for the emission units;
- 3.9.2 A maintenance schedule for the emission units;
- 3.9.3 Monitoring and record keeping requirements for the emission units;
- 3.9.4 A description of the monitoring procedures for the emission units; and
- 3.9.5 Actions for abnormal control system operation.

## 3.10 GENERAL CONDITIONS

- 3.10.1 No instrumentation containing mercury shall be used at the site.
- 3.10.2 No outdoor burning shall be conducted at the source.

- 3.10.3 Operation of the equipment must be conducted in compliance with all data and specifications submitted as part of the Notice of Construction application unless otherwise approved by Ecology. Any activity undertaken by the permittee or others, in a manner inconsistent with the application and this determination, shall be subject to Ecology enforcement under applicable regulations.
- 3.10.4 Records of all data shall be maintained in a readily retrievable manner for a period of five (5) years and be made available to authorized representatives of Ecology.
- 3.10.5 Legible copies of this Order and the O&M manuals shall be displayed onsite at all times in a location known by and available to employees in direct operation of the emission unit and available to Ecology upon request.
- 3.10.6 Access to the source by the United States Environmental Protection Agency or the Department of Ecology shall be permitted upon request for the purpose of compliance assurance inspections. Failure to allow access is grounds for revocation of this Order.
- 3.10.7 Nothing in this determination shall be construed so as to relieve the permittee of their obligations under any state, local, or federal laws or regulations.
- 3.10.8 It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order.
- 3.10.9 It shall be grounds for recision of this approval if physical operation of an emission unit is discontinued for a period of eighteen (18) months or more. Ecology may extend the 18-month period upon a satisfactory showing that an extension is justified.
- 3.10.10 This Order is valid only after payment of appropriate fee(s) required pursuant to WAC 173-400-116.

Authorization may be modified, suspended or revoked in whole or part for cause, including, but not limited to, the following:

- I. Violation of any terms or conditions of this authorization;
- II. Obtaining this authorization by misrepresentation or failure to disclose fully all relevant facts.

The provisions of this authorization are severable and, if any provision of this authorization of application of any provision to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this authorization, shall not be affected thereby.

You have a right to appeal this permit. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours
- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of (1) the permit you are appealing and (2) the application for the permit.
- Serve and file your appeal in paper form; electronic copies are not accepted.

# 1. To file your appeal with the Pollution Control Hearings Board

Mail appeal to: Deliver your appeal in person to:

The Pollution Control Hearings Board PO Box 40903

Olympia, WA 98504-0903

The Pollution Control Hearings Board 4224 – 6th Ave SE Rowe Six, Bldg 2 Lacey, WA 98503

### 2. To serve your appeal on the Department of Ecology

Mail appeal to: Deliver your appeal in person to:

The Department of Ecology
Appeals Coordinator

P.O. Box 47608

Olympia, WA 98504-7608

The Department of Ecology
Appeals Coordinator
300 Desmond Dr SE
Lacey, WA 98503

## 3. And send a copy of your appeal to:

Sue Billings
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov

To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser

DATED at Yakima, Washington, this [day] day of [month], 2009.

## **REVIEWED BY:**

PROPOSED DECISION

Lynnette A. Haller, PE Central Regional Air Quality Section Washington State Department of Ecology

## APPROVED BY:

PROPOSED DECISION

Susan M. Billings